

REMARKS

Claims 1-33 are pending. Claims 1-16 and 25-33 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,254,883 (Horowitz). Claims 1-33 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,388,084 (Itoh). Claims 16-28 were rejected under 35 U.S.C. §112, first paragraph, and Claims 1-14, 16-31 and 33 were rejected under 35 U.S.C. §112, second paragraph. Applicants gratefully acknowledge that Claims 3-9 and 18-24 have been found to contain allowable subject matter.

Claims 1, 2, 13, 28, and 32 are canceled herein without prejudice.

Rejection Under 35 U.S.C. §112, First Paragraph

Claims 16-28 were rejected under 35 U.S.C. §112, first paragraph as allegedly based on a non-enabling disclosure.

Amended independent Claim 16 reads, in relevant part, “A programmable DC voltage generator system having at least one voltage generator system, a voltage generator system which is one of the said at least one voltage generator system comprising: means for charge pumping...” The element “means for charge pumping” in Claim 16 clearly refers to a means plus function equivalent to the charge pump 500 of Figure 1.

Amended dependent Claim 17 now incorporates a reference to a “means for charge pumping.” Thus, Claim 17 now contains a means plus function equivalent to the charge pump 500 of Figure 1.

Therefore, the rejection of Claims 16-28 under 35 U.S.C. §112, first paragraph is believed to have been overcome.

Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 1-14, 16-31 and 33 were rejected under 35 U.S.C. §112, second paragraph, as indefinite.

Claim 3 has been amended to incorporate the subject matter of Claim 2. Claim 3 has also been amended as suggested by the Examiner to recite “A programming circuit and a control circuit controlling a charge pump of a voltage generator system...” as suggested by the Examiner, and as such, Claim 3 is now believed to overcome the 35 U.S.C. §112 second paragraph rejection, and is believed to be in condition for allowance. Consequently, the objection to Claim 3 regarding the “control circuit”, and the objection to dependent Claims 4-12, is believed to have been overcome.

Because Claim 3 has been amended to include the control circuit, the objection to the “MOS transistor” of Claim 14 is also believed to have been overcome.

Amended independent Claim 16 reads, in relevant part, “A programmable DC voltage generator system having at least one voltage generator system, a voltage generator system which is one of the said at least one voltage generator system comprising: means for charge pumping...” Claim 16 has been amended to clarify that the “a voltage generator system” is a single one voltage generator system arbitrarily chosen from the set of “at least one voltage generator system”. Therefore, the rejection of Claim 16 is believed to have been overcome.

Independent Claim 29 has been amended similarly to Claim 3, therefore the objection to Claims 29-31 and 33 is now also believed to have been overcome.

For at least these reasons, Applicants request that Examiner withdraw the 35 U.S.C. §112, second paragraph rejection of Claims 3-12, 16-27, 29-31, and 33.

Rejection Under 35 U.S.C. §102(b) as Anticipated by Horowitz

Claims 1-16 and 25-33 were rejected under 35 U.S.C. §102(b) as being anticipated by Horowitz.

Independent Claim 3 has been amended in accordance with Examiner's suggestions to place Claim 3 into allowable condition. Claims 10-12 have been amended to depend from Claim 3. Claims 4-12, 14, and 15 now depend, directly or indirectly, from Claim 3. Therefore, Claims 3-12, 14, and 15 are now in condition for allowance.

Amended independent Claim 16 reads, in relevant part, "A programmable DC voltage generator system having at least one voltage generator system, a voltage generator system which is one of the said at least one voltage generator system comprising: means for charge pumping..." Horowitz contains no means for charge pumping, nor does Examiner assert that Horowitz contains any means for charge pumping. Therefore, Claim 16 is not anticipated by Horowitz.

In contrast to amended independent Claim 29, Horowitz does not disclose an input control signal having a value selectable from a range of values, wherein the input control signal is generated external to the voltage generator system. First, the only input disclosed by Horowitz is V_{term} , which has only on and off values (see Horowitz column

11, lines 19-23, disclosing that Vterm switches on the circuit of Figure 6). And second, Horwitz does not disclose the origin of Vterm, and the very nature of Vterm (termination voltage) implies that Vterm originates within the generator system disclosed by Horwitz (see, e.g., Horwitz Figure 6, column 10, lines 32 to 35, and column 11, lines 19-23). Therefore, Claim 29 is not anticipated by Horowitz.

Claims 30-33 depend from independent Claim 29, therefore Claims 30-33 are not anticipated by Horowitz for at least the reasons that Claim 16 is not anticipated by Horowitz.

Rejection Under 35 U.S.C. §102(b) as Anticipated by Itoh

Claims 1-33 were rejected under 35 U.S.C. §102(b) as being anticipated by Itoh.

Independent Claim 3 has been amended in accordance with Examiner's suggestions to place Claim 3 into allowable condition. Claims 10-12 have been amended to depend from Claim 3. Claims 4-12, 14, and 15 now depend, directly or indirectly, from Claim 3. Therefore, Claims 3-12, 14, and 15 are now in condition for allowance.

Amended independent Claim 16 reads, in relevant part: "...means for charge pumping; means for controlling the means for charge pumping; and means for programming including: ...means for outputting the at least one output control signal to the means for controlling the means for charge pumping of the voltage generator system for controlling the means for controlling the means for charge pumping in accordance with the at least one input control signal." In contrast, Itoh does not disclose a means for controlling a means for charge pumping in accordance with at least one input control

signal. Instead, Itoh discloses a means for charge pumping, i.e. booster circuit 20, and a voltage limiter 21 that affects the output of the booster circuit 20 in accordance with an input from voltage setting circuit 22 (see Itoh Figure 6, note the direction of the arrow labeled V_{pp}). Because the output of the voltage limiter 21 is not accepted as an input by the booster circuit 20, the voltage limiter 21 does not “control” the booster circuit 20 within the meaning of Claim 16. Itoh also discloses a ring oscillator 19 that provides an input to the booster circuit 20, but the ring oscillator 19 of Itoh does not process an input control signal using a series of bias stages as claimed in Claim 16. Therefore, Claim 16 is not anticipated by Itoh.

Claim 17 has been amended to better claim the present invention, and Claims 17 and 18 have been amended to depend from Claim 16. Claims 17-27 depend from independent Claim 16, therefore Claims 17-27 are not anticipated by Itoh for at least the reasons that Claim 16 is not anticipated by Itoh.

Regarding the rejection of independent Claim 29, Itoh does not disclose an output control signal controlling at least one of (1) a limiter circuit for disabling an oscillator circuit upon reaching a target output voltage, and (2) a pumping speed of the oscillator circuit, as recited in Claim 29 as amended. The Examiner cites Itoh, Figures 13-15, as disclosing these elements. However, Itoh teaches away from using an output control signal of a programming circuit to use a limiter circuit to control an oscillator circuit. Specifically, the voltage limiter 21 of Itoh only limits the output voltage of the booster circuit 20, and is not disclosed as controlling the oscillator circuit (ring oscillator 19) as recited in Claim 29 as amended. See Itoh at column 7, lines 20-29, which reads:

After power is given, the ring oscillator 19 starts oscillating, supplying the clock signals $\Phi 1$ and $\Phi 2$ to the booster circuit 20, so that the boosting of the source voltage V_{cc} starts. When the output voltage of the booster circuit 20 becomes sufficiently high, this voltage is limited by the voltage limiter 21 to a voltage ($15V + V_A$) which is the sum of the voltage three times the zener breakdown voltage of a single Zener diode, i.e., $5V \times 3 = 15V$, and the voltage V_A at the other end of the voltage limiter 21.

Further, Itoh Figures 5, 6, 13, 14, 17, and 18 show that the voltage limiter 21 has no output which is used as an input by the ring oscillator 19. Therefore, Itoh does not disclose an output control signal controlling the limiter circuit for disabling the oscillator circuit upon reaching a target output voltage. Itoh also does not disclose an output control signal controlling the pumping speed of the oscillator circuit. Therefore, Claim 29 is believed to be allowable over Itoh.

Claims 30, 31, and 33 depend from independent Claim 29, therefore Claims 30, 31, and 33 are believed to be allowable over Itoh for at least the reasons that Claim 29 is believed to be allowable over Itoh.

Applicants submit that pending Claims 3-12, 14-27, 29-31, and 33 are believed to be in condition for allowance. Allowance is respectfully requested. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,



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